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Structure-Based Understanding of the Function-Dysfunction of ABC Transporters

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Message from the Guest Editors

Dear Colleagues,

ATP-Binding Cassette (ABC) transporters form a large superfamily of integral membrane proteins that mediate the movement of a diverse assortment of substrates across membranes, including ions, metabolic products, lipids and sterols, and drugs. ABC transporter dysfunction is linked to a wide variety of disease conditions, including multidrug resistance, cystic fibrosis, neurological diseases, and diabetes. Among the mammalian ABC transporters family, ABCB1 (Pgp, P-glycoprotein) and ABCC7 (CFTR, Cystic Fibrosis Transmembrane Conductance Regulator) have received considerable attention. Substantial progress has been made in recent years in the understanding of the molecular basis of ABC transporter function, in particular, based on the resolution of 3D structures using single-particle cryo-electron microscopy (cryo-EM). Among the challenges is to understand the effect of mutations on the structure and function of ABC transporters, which will guide the rational design of drugs to correct the dysfunction of ABC transporters.

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Message from the Editor-in-Chief

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